



**4910-13**

**DEPARTMENT OF TRANSPORTATION**

**Federal Aviation Administration**

**14 CFR Part 91**

**Docket No. FAA–2012–0252**

**Unmanned Aircraft System Test Sites**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Request for comments.

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**SUMMARY:** The FAA intends to identify six test ranges/sites to integrate unmanned aircraft systems (UAS) into the National Airspace System (NAS). This pilot project is in direct response to a Congressional mandate. The FAA believes that designation of such UAS test sites will assist in the effort to safely and efficiently integrate UAS into the NAS and solicits feedback on this issue. This feedback will be utilized to help develop UAS test site requirements, designation standards, and oversight activity.

**DATES:** The FAA values the input of the UAS community at large and intends to incorporate ideas and suggestions into the UAS test site designation process. Send your comments on or before *[INSERT DATE 60 DAYS AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]*.

The FAA will also host national webinars to provide further information and obtain feedback regarding the six test ranges/site. Additional information and frequently asked questions are available at [www.faa.gov/](http://www.faa.gov/).

**ADDRESSES:** You may send comments identified by docket number FAA-2012-0252 using any of the following methods:

- Federal eRulemaking Portal: Go to <http://www.regulations.gov> and follow the online instructions for sending your comments electronically.
- Mail: Send comments to Docket Operations, M-30; U.S. Department of Transportation, 1200 New Jersey Avenue, SE, Room W12-140, West Building Ground Floor, Washington, DC 20590-0001.
- Hand Delivery or Courier: Take comments to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE. Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.
- Fax: Fax comments to Docket Operations at 202-493-2251.

*Privacy*: The FAA will post all comments it receives, without change, to <http://www.regulations.gov>, including any personal information the commenter provides. Using the search function of the docket web site, anyone can find and read the electronic form of all comments received into any FAA dockets, including the name of the individual sending the comment (or signing the comment for an association, business, labor union, etc.). DOT's complete Privacy Act Statement can be found in the Federal Register published on April 11, 2000 (65 FR 19477-19478), as well as at <http://DocketsInfo.dot.gov>.

*Docket*: Background documents or comments received may be read at <http://www.regulations.gov> at any time. Follow the online instructions for accessing the docket or go to Docket Operations in Room W12-140 of the West Building Ground Floor at 1200 New Jersey Avenue, SE., Washington, DC, between 9 a.m. and 5 p.m., Monday through Friday, except Federal holidays.

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## **SUPPLEMENTARY INFORMATION:**

### **I. Background**

An unmanned aircraft is a device that is used, or is intended to be used, for flight in the air with no onboard pilot. These devices may be as simple as a light, hand launched aircraft flown within line of sight of the operator or as complex as a high altitude surveillance aircraft patrolling our nation’s borders. They may be flown using a data link to transmit commands to the aircraft. They may perform a variety of public services, including: surveillance, collection of air samples to determine levels of pollution, or rescue and recovery missions in crisis situations. They currently range in size from wingspans of six inches to over 240 feet; and can weigh from approximately four ounces to over 32,000 pounds. The one thing they have in common is that their numbers and uses are growing dramatically. In the United States alone, approximately 50 companies, universities, and government organizations are developing and producing some 155 unmanned aircraft designs. Regulatory standards need to be developed to enable current technology for unmanned aircraft, and unmanned aircraft operations, to comply with Title 14 Code of Federal Regulations (CFR). Additionally, research needs to be performed to assess and mitigate operational safety and efficiency issues to enable routine UAS operations in the NAS.

### **Congressional Mandate under FAA Modernization and Reform Act of 2012**

On February 14, 2012, the FAA Modernization and Reform Act of 2012 was signed by the President. The Act includes specific requirements for unmanned aerial [aircraft] systems and national airspace.

Under H.R. 658, Section 331(c), the FAA Administrator is required to establish a program to integrate unmanned aircraft systems into the national airspace system at six test ranges. In establishing the program, the Administrator shall:

- (A) safely designate airspace for integrated manned and unmanned flight operations in the national airspace system;
- (B) develop certification standards and air traffic requirements for unmanned flight operations at test ranges;
- (C) coordinate with and leverage the resources of the National Aeronautics and Space Administration and the Department of Defense;
- (D) address both civil and public unmanned aircraft systems;
- (E) ensure that the program is coordinated with the Next Generation Air Transportation System; and
- (F) provide for verification of the safety of unmanned aircraft systems and related navigation procedures before integration into the national airspace system.

In determining the location of the 6 test ranges of the program, the FAA Administrator shall—

- (A) take into consideration geographic and climatic diversity;
- (B) take into consideration the location of ground infrastructure and research needs; and
- (C) consult with the National Aeronautics and Space Administration and the Department of Defense.

## **Congressional Mandate under National Defense Authorization Act (NDAA)**

On December 30, 2011, the NDAA was signed by the President. Section 1097 includes specific requirements for unmanned aerial [aircraft] systems and national airspace almost identical to the language in the FAA Modernization and Reform Act of 2012.

Under the NDAA, the FAA's Administrator is required to establish a program to integrate unmanned aircraft systems into the national airspace system at six test ranges not later than 180 days after December 30, 2011. In establishing the program, the Administrator shall:

- (1) safely designate nonexclusionary airspace for integrated manned and unmanned flight operations in the national airspace system;
- (2) develop certification standards and air traffic requirements for unmanned flight operations at test ranges;
- (3) coordinate with and leverage the resources of the Department of Defense (DoD) and the National Aeronautics and Space Administration (NASA);
- (4) address both civil and public unmanned aircraft systems;
- (5) ensure that the program is coordinated with the Next Generation Air Transportation System; and
- (6) provide for verification of the safety of unmanned aircraft systems and related navigation procedures before integration into the national airspace system.

In determining the location of a test range the Administrator shall: (1) take into consideration geographic and climatic diversity; (2) take into consideration the location of ground infrastructure and research needs; and (3) consult with DoD and NASA. A project at a test range (a defined geographic area where research and development are conducted) shall be operational no later than 180 days after the date the pilot project is established.

No later than 90 days after the date of completing a pilot project, the Administrator shall submit a report to: the Committee on Armed Services, the Committee on Transportation and Infrastructure, and the Committee on Science, Space, and Technology of the House of Representatives; and, the Committee on Armed Services and the Committee on Commerce, Science, and Transportation of the Senate. The report will include a description and assessment of the progress being made in establishing special use airspace to fill the immediate need of DoD.

The program shall terminate on the date that is five years after the date of the enactment of this Act.

## **II. Discussion**

To meet the Congressional timeline and increasing demand from the UAS community, the FAA intends to designate UAS test sites based on locations/applications submitted by interested government agencies, private institutions and organizations. In addition to identification of test ranges, the airspace volume that is associated with the test range will need to be defined. Impact on NAS operational efficiency, the ability to accommodate planned and projected research missions, and other factors that are traditionally considered in determining flight test airspace will be elements of the test range airspace designation.

The FAA will leverage test range experience from DoD and NASA in the designation process and subsequent oversight activities. DoD and NASA already have orders/directives covering the operation of their test ranges. DoD and NASA have indicated that, while their organizations are not requesting to create additional restricted airspace for UAS testing, they are willing to assist the FAA with this initiative. Appropriate guidance for test sites for civil and

public users (States, commercial, academia, etc.) should, to the extent possible, be harmonized with current Federal directives.

In February 2009, the FAA entered into a Cooperative Research and Development Agreement (CRDA) with a public university for collaborative research on UAS, and operations were authorized in June 2011. UAS operations are conducted under a Certificate of Waiver or Authorization (COA) which precludes operations for compensation or hire. A safety assessment process for operations was developed; and this process is supported by Standard Operating Procedures (SOPs). The objective of this research is to prescribe operating requirements in the NAS (outside of restricted and/or warning area airspace) for the purpose of testing, training and/or operational flights.

### **III. Request for Comments**

The FAA is asking the public to answer the following questions to help develop refined UAS test site requirements, designation standards, and oversight activities. The period for this request for comment has been limited to 60 days to ensure that the FAA is able to make informed decisions based on public input, while still meeting the Congressionally-mandated timelines. Comment size is limited to 2.5 pages per section (A-H) with an aggregate maximum of 20 pages using 12 point font size.

(A) The Congressional language asks the FAA to consult with and leverage the resources of the DoD and the NASA in this effort. Since many public operators already have access to test ranges and control the management and use of those ranges, should the management of these

new test ranges be held by local governments or should a private entity schedule and manage the airspace?

(B) Safety of the NAS is paramount to the integration of UAS test sites. In the present UAS test range construct, the focus of the test work is at the discretion of the proponent, provided that the testing can be done safely. While preserving opportunities to accommodate unique entrepreneurial efforts, the FAA believes that the new test sites need to include focal points to ensure that research is accomplished in each of the areas identified as a major obstacle to UAS NAS integration. These focal areas include: UAS system safety and data gathering; UAS aircraft certification; UAS command and control link issues; UAS control station layout and certification; UAS ground and airborne sense and avoid research; and, any environmental impacts associated with the operation of UAS in the NAS. Are there other focal areas that need to be elevated to the stature of being a test site focal area?

(C) The legislation does not contain any funding for the set up, management or oversight of the test ranges. In the selection of a UAS test site, the FAA anticipates that proponents with existing facilities and infrastructure, such as operations buildings, launch facility/runway, surveillance, monitoring and range control, would be considered first, followed by proponents with firm funding for facilities and infrastructure. Are there other overriding considerations for site selection?

(D) The FAA believes that the combined capabilities of the six test sites should provide an environment and opportunities to test:

- (1) conventional takeoff and landing capability,
- (2) high speed flight,
- (3) maritime (launch/maneuver/recovery) capability,



(4) operations at extremely high altitudes, and

(5) evaluation of dissimilar aircraft in multiple altitude structures.

While each site would not necessarily need to be identical, nor would each site need to have all five of these capabilities, the FAA believes that these capabilities should be present in the aggregate of the six test sites. Are there any other capabilities that test site selection should include?

**(E)** Geographical and climatic diversity are desirable traits for the test site location. The FAA believes that in addition to these traits, there are other important factors affecting siting. These include proximity to potential users and availability of a suitable ground or air transportation network. Are there other siting characteristics of this nature that should be considered?

**(F)** The FAA believes that all UAS test site operators should be able and willing to demonstrate their ability and experience in conducting UAS operations and research. Methods that test site operators can use for that include: providing a detailed plan of operations (safety case, business case, etc.); demonstrating experience in managing and oversight of research and development (R&D) activities; and demonstrating the ability to mitigate technical and operational risk. Test site operators will also be responsible for ensuring that approval for use of any necessary frequency spectrum or transmit authority has been obtained. Are there other test site operator requirements that should be considered?

**(G)** The FAA is considering utilizing the requirements contained in 14 CFR 91.305, “No person may flight test an aircraft except over open water, or sparsely populated areas, having light air traffic.” The FAA also published an update to Order 8130.34A (currently Rev B) in November 2011, which includes language specific to flight test areas for experimental airworthiness

operations. Should the FAA apply these same requirements to those seeking a UAS test site designation?

(H) The FAA must define the airspace volume that is associated with the test range. How should airspace volume associated with test ranges be defined? Additionally, the FAA must assess the impact on NAS operational efficiency. How should impact to NAS efficiency be assessed?

#### **IV. Conclusion**

The FAA intends to utilize public comments to meet the requirements spelled out in in NDAA (H.R. 1540) SEC 1097 UNMANNED AERIAL SYSTEMS AND NATIONAL AIRSPACE (a)-(d).

Issued in Washington, DC, on March 5, 2012.

John M. Allen

Director, Flight Standards Service

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